ASSIGNMENT 5

Textbook Assignment: “Care and Adjustment of Surveying Equipment.” Pages 6-1 through 6-10.

Learning Objective: Identify ways to care for surveying instruments properly.

5–1. In chapter 6, adjustment is best described by which of the following definitions?

1. Aligning the fixed parts of the instrument
2. Aligning the telescope for leveling work
3. Aligning the instrument for a level run
4. Aligning a transit scope for use with a level

5–2. Which, if any, of the following items come with an instrument to assist you with care and maintenance?

1. A tool kit to repair the instrument
2. A prepaid shipping box to return it to the manufacturer for repairs
3. A user’s manual
4. None of the above

5-3. Which of the following situations should you avoid when handling or caring for your instrument?

1. Setting up the instrument in a street
2. Removing the instrument from the case by the telescope
3. Tightening the instrument to the tripod head during setup
4. Tightening all screws to a firm bearing

5-4. What is the preferred method for carrying an instrument on a sidehill?

1. On the uphill shoulder
2. Walk the instrument on the tripod legs
3. Under the arm on the downhill side
4. On the downhill shoulder

5-5. All clamp screws should be securely tightened when an instrument is transported.

1. True
2. False

5-6. When an instrument is not in use, you should store it in what manner?

1. In the carrying case
2. Placed on a shelf in the survey locker
3. Mounted on the tripod
4. Any place that is convenient

5–7. Which of the following bags may be used to carry stakes and hubs?

1. An orange canvas bag with a shoulder strap
2. A newsboy’s bag
3. A seabag
4. Each of the above

5-8. What is the recommended method for carrying surveyor’s tacks?

1. In the tack box
2. In a pocket on the surveyor’s bag
3. Stuck in a rubber ball or piece of softwood
4. In your shirt pocket for quick access

5-9. You should NEVER carry any equipment in sheathes, pouches, or on your belt.

1. True
2. False

5-10. You have been surveying and were caught in the rain. Upon returning to the office, what should you do with the instrument?

1. Store the instrument in the carrying case
2. Blow-dry the instrument with a hair dryer
3. Wipe it down with a cloth
4. Remove it from the case and dry the instrument at room temperature

5–11. You should clean the lens of the telescope with a chamois or lint-free cloth only.

1. True
2. False

5-12. What type of oil is recommended for lubricating transits in sub-zero temperature?

1. Watch oil
2. Whale oil
3. Graphite
4. 10W-30

5–13. Which of the following sources should you consult before doing anything to an instrument?

1. Tech library
2. Senior EA
3. Manufacturer’s manual
4. Either 2 or 3 above

5-14. Why is it important to clean mud and dirt from your equipment after use?

1. To prevent rust or decay
2. For neatness
3. To keep the Chief happy

5-15. Why is it important to take good care of your equipment?

1. For inspection purposes
2. For quality work and accurate surveys
3. Both 1 and 2 above
4. For safety

5-16. Major repairs and major adjustments are among the responsibilities of the EA.

1. True
2. False

5-17. Recalibration should by done by whom?

1. The senior EA
2. The manufacturer
3. The supply department
4. The instrumentman

5-18. To make proper adjustments, the surveyor should have which of the following information?

1. The ability to tell the effect of the adjustment on other parts
2. The ability to perform tests used to determine when the instrument is out of adjustment
3. The proper sequence for making adjustments
4. Each of the above

5-19. Which of the following instrument parts is/are used to make instrument adjustments for levels?

1. Tripod head
2. Cross hairs
3. Level tubes
4. Both 2 and 3 above

5-20. The cross hairs on a telescope are out of adjustment when they fail to align with

1. the object being sited
2. one another
3. the optical axis
4. the alignment points

5-21. How do you determine if an Abney or Locke level is out of adjustment?

1. Check the reflected bubble with the instrument in a horizontal plane
2. Check the reflected bubble with the instrument in a vertical plane
3. Check the plate level bubbles

5–22. What is a general rule regarding the freguency of adjustment?

1. Check and adjust often
2. Check rarely and adjust rarely
3. Check often and adjust rarely
4. Check rarely and never adjust

5–23. You feel your instrument is out of adjustment. Which of the following procedures should you do before making any adjustments?

1. Ensure the instrument is screwed down on the tripod
2. Set the instrument up in the shade
3. Repeat the checks at least three times
4. All of the above

5–24. What type of surface should you use to set up an instrument for adjustment?

1. Asphalt
2. Chipped hardened surface
3. Sand
4. Plywood

5-25. What purpose, if any, does retightening the wing nuts on the tripod legs accomplish?

1. To prevent a possible shifting of the legs
2. To ensure the nuts did not loosen themselves
3. To keep the tripod head from moving
4. None

5-26. Most tests show an error equal to what amount of the actual displacement error?

1. Half the actual error
2. Double the actual error
3. Equal to the actual error
4. Three times the actual error

5-27. What is creep in relation to the instrument?

1. Position shift due to heat
2. Settlement of the instrument
3. Position shift due to cold
4. All of the above

5-28. The operator’s manual is your first source of information when instruments need adjustment.

1. True
2. False

5-29. You are performing a survey requiring a high degree of accuracy. Which, if any, of the following procedures should be one of the first steps you perform?

1. Check your instrument for maladjustment
2. Figure the compensation for adjustments to the instrument
3. Oil the tripod head
4. None of the above

Learning Objective: Recognize the correct test and procedures to be used in relation to an engineer’s level.

5-30. You are assigned to a survey party. You get the level along with your other equipmnet. What procedure, if any, should you perform on the instrument before starting work?

1. Check the instrument for proper adjustment
2. Adjust all the bubble tubes to the maximum angle
3. Perform a two–peg test
4. None

5-31. When adjusting a level, you should follow an exact order for making all the adjustments.

1. True
2. False

5-32. You have found the level tube out of adjustment on a level. You set the instrument up and then level the bubble over each set of leveling screws. What is your next step?

1. Rotate the instrument 90° and adjust the bubble half the distance to the center of the tube
2. Rotate the instrument 180°, check the bubble, and adjust the bubble to the center of the tube
3. Rotate the instrument 180° and adjust the bubble half the distance to the center of the tube
4. Rotate the instrument 180°, loosen the capstan screws, and rotate the reticle until the bubble is half the distance of the tube

5-33. Adjustments on a level should be made in what order?

1. Vertical cross hair, level tube, and line of sight
2. Horizontal cross hair, line of sight, and level tube
3. Level tube, line of sight, and horizontal cross hair
4. Level tube, horizontal cross hair, and line of sight

5–34. The two-peg test is used for what purpose?

1. All transit adjustments
2. Adjusting line of sight on levels
3. Aligning the vertical cross hair
4. Adjusting the line of sight on transits

5-35. How should you compensate in the field for a maladjusted level tube on a level?

1. Replace the tube
2. Balance all your shots
3. Relevel before each reading
4. Run a two-peg test after several shots

5-36. What is the recommended method, if any, for doing fieldwork when you have a maladjusted horizontal cross hair on a level?

1. Always sight on a horizontal plane
2. Use the part of the horizontal cross hair closest to the vertical cross hair
3. Use the part of the horizontal cross hair on the outside of the scope
4. None

5-37. To compensate for a maladjusted line of sight on a level in the field, you should

1. balance your foresights and backlights
2. take short foresights and long backsights
3. level the instrument after every foresight
4. reverse the rod for backsights

Learning Objective: Recognize the correct test and adjustment procedures to be used in relation to a surveyor’s transit.

5-38. Where should your transit be located when you are testing and adjusting it?

1. In the office on a desk
2. In the shade on the hood of a vehicle
3. In the shade on a tripod
4. In the shade on a workbench

5–39. You are adjusting the telescope level on a transit. When you complete this adjustment, what is your next step?

1. Check the plate bubbles
2. Recheck the telescope level
3. Check the vertical vernier
4. Begin the survey

5-40. When the plate bubbles are properly aligned on a transit, this will ensure what condition?

1. Horizontal angles are measured in a true horizontal plane
2. Vertical angles are measured in an inclined plane
3. Index error is very small
4. Plate level tubes are parallel to the vertical axis

5-41. What test should be performed every time you set up a transit?

1. Telescope level
2. Line of site
3. Plate bubbles
4. Vertical circle vernier

5–42. Which of the following situations requires the use of the vertical cross hair?

1. To lay out a fence line
2. To lay out utility poles
3. To lay out a building 90° to another building
4. Each of the above

5-43. If the line of sight is maladjusted in a transit, how do you compensate for it in the field?

1. By double centering
2. By turning multiple angles
3. By rotating the cross hairs

5–44. When you are using a transit for direct leveling and the telescope level is out of adjustment, what is the correct method of compensating?

1. Same as the engineer’s level
2. Repair it before use
3. Ignore it as it has no effect
4. Replace the telescope

5-45. To compensate for a misaligned vertical vernier, you should

1. read all vertical angles reversed only
2. read all angles horizontal only
3. read all vertical angles direct only
4. read all vertical angles direct and reversed and then use the average

5-46. The EA should make minor and major repairs to all equipment.

1. True
2. False

5-47. Equipment in need of adjustment should be adjusted at what interval?

1. Monthly
2. Weekly
3. Every 2 weeks
4. Whenever it is needed

5-48. Which of the following activities may perform minor repairs?

1. Navy cal lab
2. Local PWD
3. Battalion machine shop
4. Each of the above

Learning Objective: Identify where to find information regarding surveying equipment and supply requirements for a battalion.

5-49. When a piece of equipment is damaged beyond repair, it must be replaced. You may obtain a replacement from what source?

1. PWD
2. Equipment manufacturer
3. Army/Navy surplus store
4. Navy supply system

5-50. What source/reference determines the maximum number of any item allowed in a battalion?

1. The supply department
2. Table of Allowance
3. An authorization list
4. The naval supply depot

5-51. Which of the following sources should you refer to when checking on the quantity of surveying kits in a battalion?

1. Table of Allowance
2. 80010 inventory list
3. *Military Requirements for Petty Officer Third Class*
4. NAVFAC P-315